Surface Characterization for Neutral Wind Imaging

Completed Technology Project (2014 - 2015)

Project Introduction

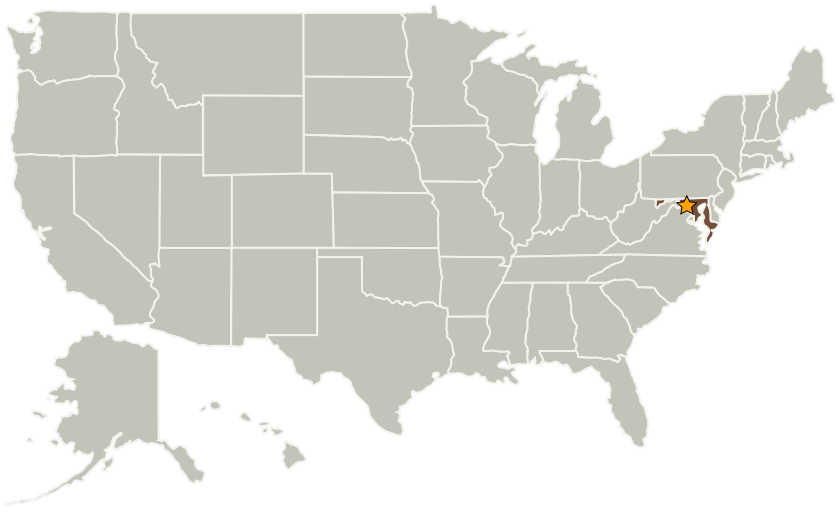
Demand is high for in situ measurements of atmospheric neutral composition, density, and winds not only for studies of the dynamic ionosphere-theremosphere-mesosphere system but simply to define the steady state background atmospheric conditions. This study looks at method to map the neutral wind environment.

The objective of this IRAD is to characterize the capability of specialized surfaces to produce secondary emissions in relation to incoming particle kinetic energy, the particle mass, and particle directionality as seen in the neutral wind environment.

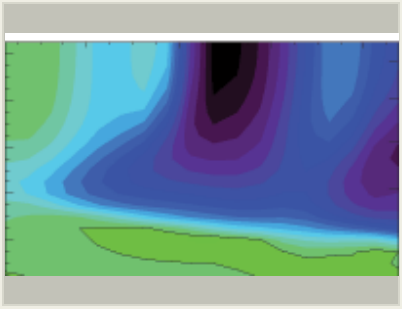
Anticipated Benefits

Once the concept is proven and characterized, the next phase will be implementation and design into a neutral wind instrument system. At implementation, the new system will be tested and proposed for NASA flight missions.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland



Neutral Wind Imaging Project

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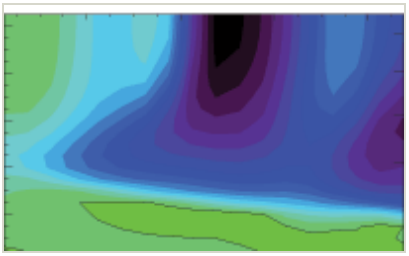
Primary U.S. Work Locations

Maryland

Images



Neutral Wind Imaging Project
Neutral Wind Imaging Project
(https://techport.nasa.gov/image/16754)

Links

NTR 1438364235
(no url provided)

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

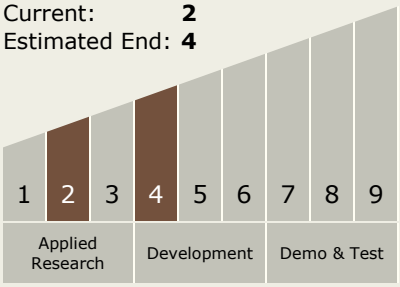
Michael J Viens

Principal Investigator:

Marcello Rodriguez

Technology Maturity (TRL)

Start: **2**
Current: **2**
Estimated End: **4**



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Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.5 Modeling and Simulation for EDL